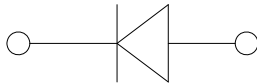
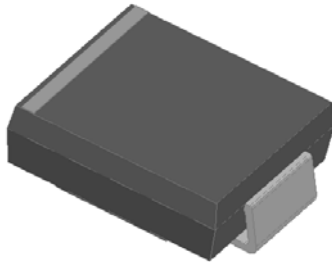


## Surface Mount Transient Voltage Suppressor Diodes

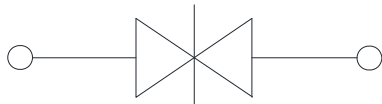
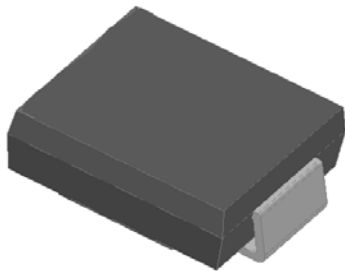
### Uni-directional



### Features

- Low profile package
- Ideal for automated placement
- Available in Uni-directional and Bi-directional
- 3000W peak pulse power capability with a 10/1000  $\mu$ s waveform
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020C, LF maximum peak of 260 °C
- ESD protection of data lines in accordance with IEC 61000-4-2, 30kV(Air),30kV (Contact)
- Part no. with suffix "Q" means AEC-Q101 qualified

### Bi-directional



### Typical Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive,telecommunication.

### Mechanical Data

- **Package:** DO-214AB (SMC)  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** For uni-directional types the band denotes cathode end, no marking on bi-directional types

### ■Maximum Ratings ( $T_a=25^\circ\text{C}$ Unless otherwise specified )

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform <sup>(1)</sup> <sup>(2)</sup> (Fig.1)	$P_{PPM}$	W	3000
Peak pulse current, with a 10/1000us waveform <sup>(1)</sup>	$I_{PPM}$	A	See Next Table
Power dissipation, on infinite heat sink at $T_L=75^\circ\text{C}$ <sup>(2)</sup>	$P_D$	W	6.5
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(3)</sup>	$I_{FSM}$	A	300
Operating junction	$T_J$	$^\circ\text{C}$	-55 to +175
Storage temperature range	$T_{STG}$	$^\circ\text{C}$	-55 to +175

### ■Electrical Characteristics ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Maximum instantaneous forward voltage @at 100A for unidirectional only	$V_F$	V	3.5



# SMDJ5.0AQ THRU SMDJ85CAQ

## ■ Thermal Characteristics (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal Resistance(Typical)	R <sub>θJA</sub>	°C/W	junction to ambient	75
	R <sub>θJL</sub>	°C/W	junction to lead	15

Notes:

- (1) Non-repetitive current pulse, per Fig.3 and derated above T<sub>J</sub>= 25°C per Fig.2.
- (2) Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal.
- (3) Measured on 8.3ms single half sine-wave or equivalent square wave,duty cycle=4 pulses per minute maximum.

## ■ Ordering Information (Example)

PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMDJ SERIES	F1	Approximate 0.257	3000	42000	13" reel

## ■ Electrical Characteristics (Ta=25°C Unless otherwise specified)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V <sub>BR</sub> @I <sub>T</sub>			Maximum Reverse Leakage I <sub>R</sub> <sup>(5)</sup> @ V <sub>RWM</sub> (μA)	Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Maximum Reverse Surge Current I <sub>PP</sub> <sup>(6)</sup> (A)	Maximum Clamping Voltage V <sub>c</sub> @ I <sub>PP</sub> (V)
		Min(V)	Max (V)	I <sub>T</sub> <sup>(4)</sup> (mA)				
SMDJ5.0AQ	SMDJ5.0CA <sup>(7)</sup>	6.4	7.07	10	1000	5	326.09	9.2
SMDJ6.0AQ	SMDJ6.0CAQ	6.67	7.37	10	1000	6	291.26	10.3
SMDJ6.5AQ	SMDJ6.5CAQ	7.22	7.98	10	500	6.5	267.86	11.2
SMDJ7.0AQ	SMDJ7.0CAQ	7.78	8.6	10	200	7	250	12
SMDJ7.5AQ	SMDJ7.5CAQ	8.33	9.21	1	100	7.5	232.56	12.9
SMDJ8.0AQ	SMDJ8.0CAQ	8.89	9.83	1	50	8	220.59	13.6
SMDJ8.5AQ	SMDJ8.5CAQ	9.44	10.4	1	25	8.5	208.33	14.4
SMDJ9.0AQ	SMDJ9.0CAQ	10	11.1	1	10	9	194.81	15.4
SMDJ10AQ	SMDJ10CAQ	11.1	12.3	1	5	10	176.47	17
SMDJ11AQ	SMDJ11CAQ	12.20	13.50	1	5	11.0	164.84	18.2
SMDJ12AQ	SMDJ12CAQ	13.30	14.70	1	2	12.0	150.75	19.9
SMDJ13AQ	SMDJ13CAQ	14.40	15.90	1	2	13.0	139.53	21.5
SMDJ14AQ	SMDJ14CAQ	15.60	17.20	1	1	14.0	129.31	23.2
SMDJ15AQ	SMDJ15CAQ	16.70	18.50	1	1	15.0	122.95	24.4
SMDJ16AQ	SMDJ16CAQ	17.80	19.70	1	1	16.0	115.38	26.0
SMDJ17AQ	SMDJ17CAQ	18.90	20.90	1	1	17.0	108.70	27.6
SMDJ18AQ	SMDJ18CAQ	20.00	22.10	1	1	18.0	102.74	29.2
SMDJ19AQ	SMDJ19CAQ	21.10	23.30	1	1	19.0	97.47	30.8
SMDJ20AQ	SMDJ20CAQ	22.20	24.50	1	1	20.0	92.59	32.4
SMDJ22AQ	SMDJ22CAQ	24.40	26.90	1	1	22.0	84.51	35.5
SMDJ24AQ	SMDJ24CAQ	26.70	29.50	1	1	24.0	77.12	38.9
SMDJ26AQ	SMDJ26CAQ	28.90	31.90	1	1	26.0	71.26	42.1
SMDJ28AQ	SMDJ28CAQ	31.10	34.40	1	1	28.0	66.08	45.4
SMDJ30AQ	SMDJ30CAQ	33.30	36.80	1	1	30.0	61.98	48.4
SMDJ33AQ	SMDJ33CAQ	36.70	40.60	1	1	33.0	56.29	53.3
SMDJ36AQ	SMDJ36CAQ	40.00	44.20	1	1	36.0	51.64	58.1
SMDJ40AQ	SMDJ40CAQ	44.40	49.10	1	1	40.0	46.51	64.5
SMDJ43AQ	SMDJ43CAQ	47.80	52.80	1	1	43.0	43.23	69.4
SMDJ45AQ	SMDJ45CAQ	50.00	55.30	1	1	45.0	41.27	72.7
SMDJ48AQ	SMDJ48CAQ	53.30	58.90	1	1	48.0	38.76	77.4
SMDJ51AQ	SMDJ51CAQ	56.7	62.7	1	1	51	36.41	82.4
SMDJ54AQ	SMDJ54CAQ	60	66.3	1	1	54	34.44	87.1
SMDJ58AQ	SMDJ58CAQ	64.4	71.2	1	1	58	32.05	93.6
SMDJ60AQ	SMDJ60CAQ	66.7	73.7	1	1	60	30.99	96.8
SMDJ64AQ	SMDJ64CAQ	71.1	78.6	1	1	64	29.13	103
SMDJ70AQ	SMDJ70CAQ	77.8	86	1	1	70	26.55	113
SMDJ75AQ	SMDJ75CAQ	83.3	92.1	1	1	75	24.79	121
SMDJ78AQ	SMDJ78CAQ	86.7	95.8	1	1	78	23.81	126
SMDJ80AQ	SMDJ80CAQ	88.8	97.6	1	1	80	23.15	129.6
SMDJ85AQ	SMDJ85CAQ	94.4	104	1	1	85	21.9	137

Notes:

- (4) Pulse Test: t<sub>p</sub>≤50ms
- (5) For bi-directional types having V<sub>RWM</sub> of 10 V and less, the I<sub>R</sub> limit is doubled.
- (6) Surge current waveform per Fig.3 and derated per Fig.2.
- (7) For the bi-directional SMDJ5.0CA, the maximum V<sub>BR</sub> is 7.25 V.



# SMDJ5.0AQ THRU SMDJ85CAQ

## ■ Characteristics(Typical)

Fig.1 Peak Pulse Power Rating Curve

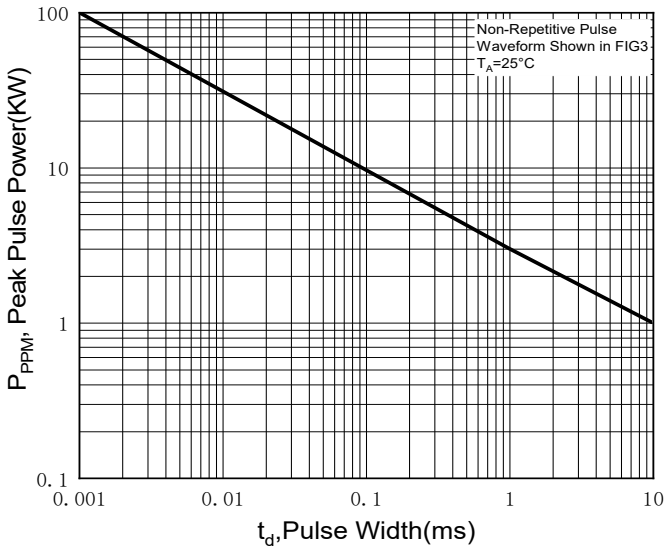


Fig.2 Pulse Power or Current vs. Initial Junction Temperature

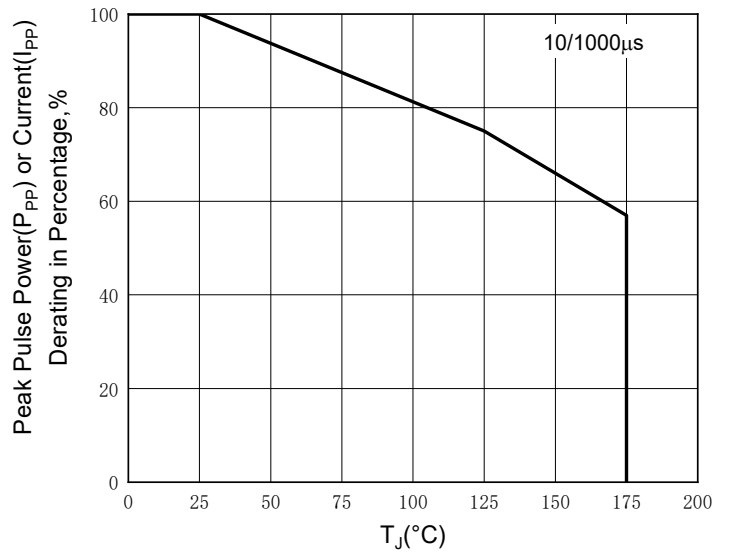


Fig.3 Pulse Waveform

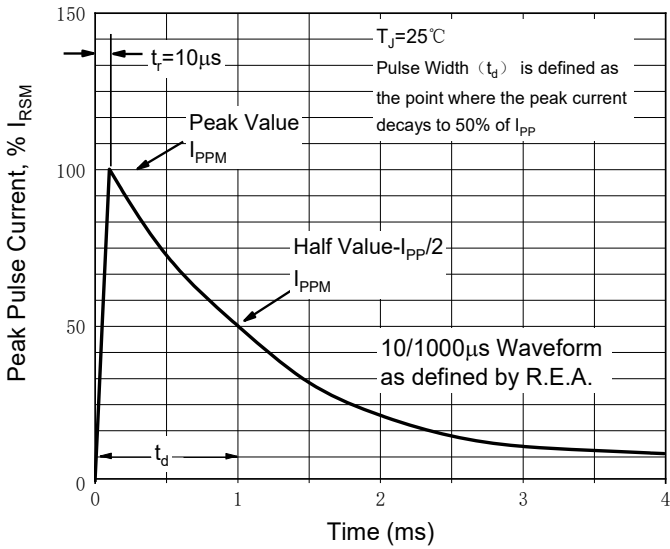


Fig.4 Typical Transient Thermal Impedance

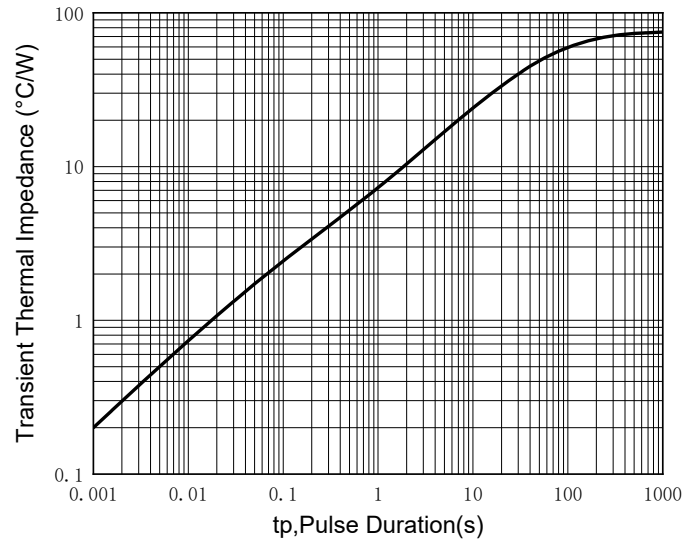


Fig.5 Maximum Non-Repetitive Forward Surge Current

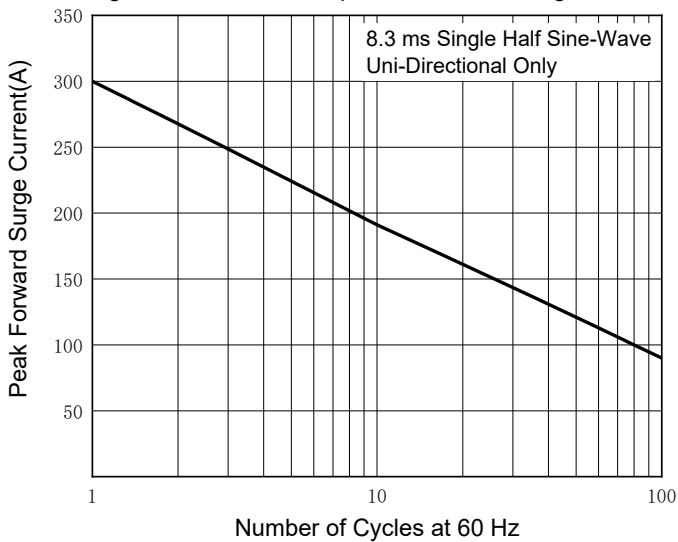
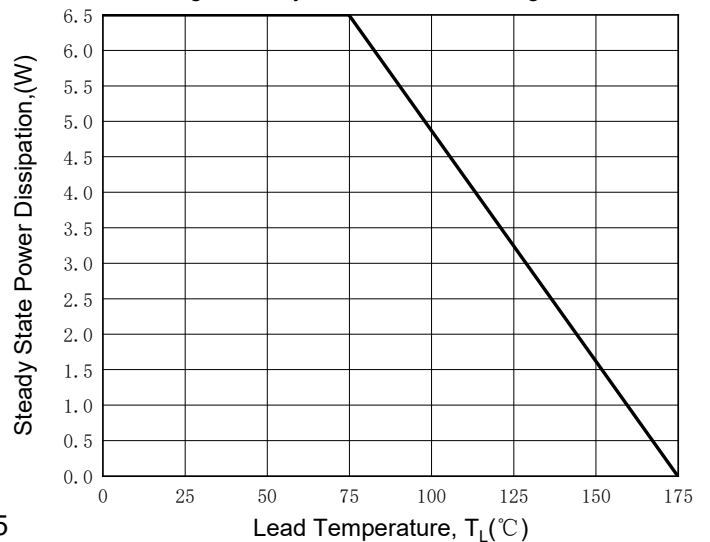


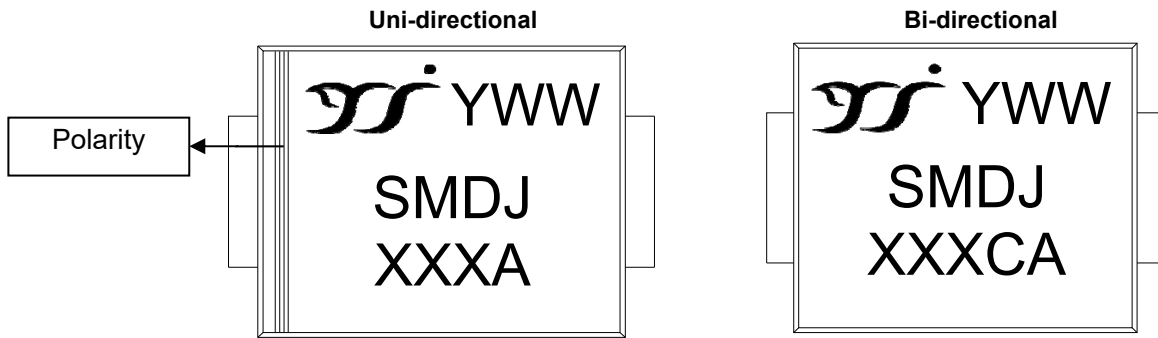
Fig.6 Steady State Power Derating Curve





# SMDJ5.0AQ THRU SMDJ85CAQ

## ■ Marking Information

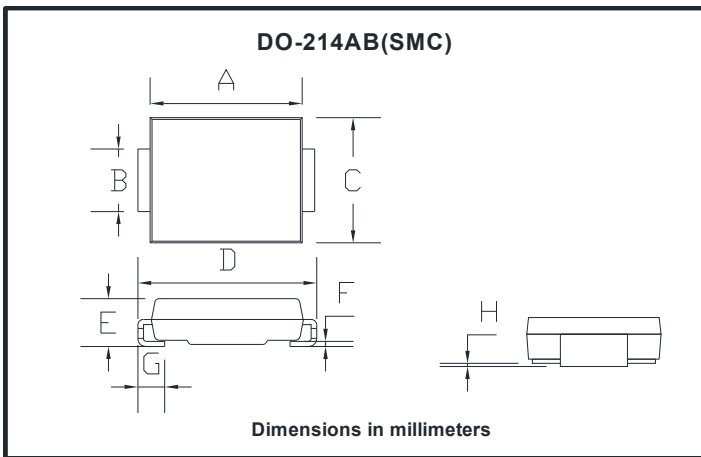


Note:

1. All marking is at middle of the product body
2. All marking is in laser printing
3. XXX is marking code, like 48A/48C marking code is 48
4. Body color: Black
5. YWW is date code, "Y" is year. "WW" is week.

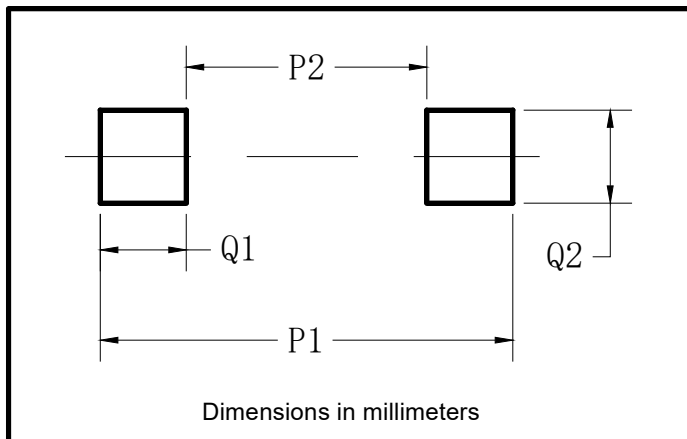
For instance:  
 The 17<sup>th</sup> week of 2021, date code is 117  
 The 17<sup>th</sup> week of 2022, date code is 217

## ■ Outline Dimensions



DO-214AB (SMC)		
Dim	Min	Max
A	6.60	7.11
B	2.85	3.27
C	5.59	6.22
D	7.75	8.13
E	1.99	2.61
F	0.15	0.31
G	0.76	1.52
H	0.05	0.20

## ■ Suggested pad layout



Dim	Typ
P1	9.9
P2	3.84
Q1	3.03
Q2	3.82



## SMDJ5.0AQ THRU SMDJ85CAQ

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[P6KE13CA](#) [P6KE43CA](#) [P6KE6.8CA](#) [P6KE8.2](#) [P6SMBJ20CA](#) [JANTX1N6072A](#) [SR2835ESKG](#) [SA90CA](#)